



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/807,871	03/24/2004	David E. Simmen	STL919990184US3	5489

7590 07/26/2005

Attn: George H. Gates  
Gates & Cooper LLP  
Howard Hughes Center  
6701 Center Drive West, Suite 1050  
Los Angeles, CA 90045

EXAMINER

NGUYEN, CINDY

ART UNIT	PAPER NUMBER
----------	--------------

2161

DATE MAILED: 07/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/807,871

Applicant(s)

SIMMEN, DAVID E.

Examiner

Cindy Nguyen

Art Unit

2161

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 24 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>03/24/004</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

This is in response to application filed on 03/24/04 in which claims 1-33 are presented for examination.

### ***Information Disclosure Statement***

The information disclosure statement filed on 03/24/04 is in compliance with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609. Because it has been placed in the application file, and the information referred to therein has been considered as to the merits.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 12, 13, 23 and 24 are rejected under 35 U.S.C. 102(e) as being anticipated by Nicolas Bruno et al. "Exploiting Statistics on query expressions for optimization", ACM SIGMOD 2002 June 4-6, Madison, Wisconsin provided by Applicant.

Regarding claims 1, 12 and 23, Nicolas discloses: a method, an apparatus, an article of manufacture for optimizing execution of a query that accesses data stored on a data store connected to a

computer comprising: using statistics on one or more expressions of one or more pre-defined queries to determine an optimal query execution plan for the query (page 263, right col. Paragraph #3 and page 266, section 3, Nicolas).

Regarding claims 2, 13 and 24, all the limitations of these claims have been noted in the rejection of claims 1, 12 and 23 above, respectively. In addition, Nicolas discloses: wherein each of the pre-defined queries is associated with an automatic summary table, materialized view or a view (page 263, right col. Paragraph #3, Nicolas).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3-11, 14-22, 25-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nicolas Bruno et al. "Exploiting Statistics on query expressions for optimization", ACM SIGMOD 2002 June 4-6, Madison, Wisconsin provided by Applicant in view of Bello et al. (US 6496819) (Bello).

Regarding claims 3, 14 and 25, all the limitations of these claims have been noted in the rejection of claims 1, 12 and 23 above, respectively. However, Nicolas didn't disclose: further comprising: generating cardinality estimates for one or more query execution plans for the query using the statistics of one or more of the pre-defined queries that vertically overlap the query; and using the generated cardinality estimates to determine an optimal query execution plan for

the query. On the other hand, Bello discloses: further comprising: generating cardinality estimates for one or more query execution plans for the query using the statistics of one or more of the pre-defined queries that vertically overlap the query (col. 13, lines 1-32, Bello); and using the generated cardinality estimates to determine an optimal query execution plan for the query (col. 10, lines 45-55, Bello). Thus, at the time invention was made, it would have been obvious to a person of ordinary skill in the art to include generating cardinality estimates for one or more query execution plans for the query using the statistics of one or more of the pre-defined queries that vertically overlap the query; and using the generated cardinality estimates to determine an optimal query execution plan for the query in the system of Nicolas as taught by Bello. The motivation being to enable the system provided a technique for processing a query that rewritten to produce a rewritten query that references the materialized view and joins the materialized view back to a join back table that contains the particular table.

Regarding claims 4, 15 and 26, all the limitations of these claims have been noted in the rejection of claims 3, 14 and 25 above, respectively. In addition, Nicoliar/Bello discloses: wherein the statistics are used to improve a combined selectivity estimate of one or more predicates of the query (col. 11, lines 14-27, Bello).

Regarding claims 5, 16 and 27, all the limitations of these claims have been noted in the rejection of claims 4, 15 and 26 above, respectively. In addition, Nicoliar/Bello discloses: wherein the predicates are applied by one or more of the pre-defined queries (col. 10, lines 8-18, Bello).

Regarding claims 6, 17 and 28, all the limitations of these claims have been noted in the rejection of claims 5, 16 and 27 above, respectively. In addition, Nicolar/Bello discloses: wherein the selectivity estimate comprises a ratio of a cardinality of the pre-defined query to a product of cardinalities of base tables referenced in the pre- defined query and the query (col. 10, lines 37-55, Bello).

Regarding claims 7, 18 and 29, all the limitations of these claims have been noted in the rejection of claims 4, 15 and 26 above, respectively. In addition, Nicolar/Bello discloses: wherein zero or more predicates of the query are applied by one of the pre-defined queries and wherein the remaining predicates are eligible to be applied on the pre-defined query (col. 10, lines 20-45, Bello).

Regarding claims 8, 19 and 30, all the limitations of these claims have been noted in the rejection of claims 7, 18 and 29 above, respectively. In addition, Nicolar/Bello discloses: wherein a predicate is eligible to be applied on the pre-defined query if it can be evaluated using the output columns and expressions of the pre-defined query (col. 11, lines 30-55, Bello).

Regarding claims 9, 20 and 31, all the limitations of these claims have been noted in the rejection of claims 8, 19 and 30 above, respectively. In addition, Nicolar/Bello discloses: further comprising determining a subpredicate combined selectivity estimate of the unapplied eligible predicates using column distribution statistics of the pre-defined query (col. 10, lines 30-36, Bello).

Regarding claims 10, 21 and 32, all the limitations of these claims have been noted in the rejection of claims 9, 20 and 31 above, respectively. In addition, Nicolar/Bello discloses: wherein a

Art Unit: 2161

cardinality ratio comprises a ratio of a cardinality of the pre-defined query to a product of cardinalities of base tables referenced in the pre-defined query and the query (col. 10, lines 37-56, Bello).


Regarding claims 11, 22 and 33, all the limitations of these claims have been noted in the rejection of claims 10, 21 and 32 above, respectively. In addition, Nicolar/Bello discloses: wherein the selectivity estimate comprises a product of the subpredicate combined selectivity estimate and the cardinality ratio (col. 11, lines 55 to col. 12, lines 41, Bello).

#### ***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cindy Nguyen whose telephone number is 571-272-4025. The examiner can normally be reached on M-F: 8:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Safet Metjahic can be reached on 571-272-4023. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9306 for regular communications and 703-872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

  
Cindy Nguyen  
June 16, 2005

  
**FRANTZ COBY**  
**PRIMARY EXAMINER**